

TRANSCENDENTAL REALISM AND ARCHEOLOGY. An introductory survey.

Eero Muurimäki

A former version of this paper was read in September 1984 at the 16th contact seminar, arranged by the students of Turku (Åbo). I have changed this presentation to a more logical and readable one than the former, but the topics are the same. Extracts of the discussion on the presentation have been printed in Kontaktstencil 26-27, p.176-177.

In this paper I shall try to present the possibilities of scientific realism in solving some grave theoretical problems of the philosophy of archeology. The discussion is highly abbreviated and results should be seen as elementary. I have not referred much to theoretical discussions in archeological contexts. However, it should be noted that every subject I am dealing with has been treated in the theoretical litterature of archeology.

In itself scientific realism is not a new doctrine of philosophy, but it has not been discussed much until the nineteenseventies. There are two versions of scientific realism, internal (epistemic) and transcendental (metaphysical)<sup>1</sup>. In this connection there is no reason to go any deeper into the differences between these two, but we may say, that they are considerable. Internal realism has even been characterised as idealism (Hacking 1983, 92). In using "realism" on its own I mean "transcendental realism". A good deal of criticism of idealism presented in this paper can be seen directed towards "internal realism" at the same time.

The relation between Marxism and scientific realism is of a quite complicated nature. Realism is based on a common ground thesis, Marxism on a common progenitor (Mäki 1985). It seems clear, that the classics of Marxism represent scientific realism, but the question, of whether it is the epistemical or metaphysical variant is more difficult to answer, because they have not formulated their stand without contradictions. They base their epistemology on material intercourse with the world, which can be seen to be between epis-

temical and metaphysical realism, or forming a third variant. (Mäki 1984, Mäki 1985).

The two most eminent philosophers of science, who have developed the theory of transcendental realism are Rom Harré and Roy Bhaskar <sup>2</sup>. For them scientific experiment has a crucial role in demonstrating the existence of a hypothetical entity, a theory, which is quite near to that of Marxism. My introduction of philosophy of science is based on theories of Bhaskar and Harré, applications to archeology are my own.

It is clear that the matters I am referring to are under dispute in the philosophy of science. But the view I have taken seems to explicate theory and practice in archaeology better than any other rival theory.

## 1. THE THREE TRADITIONS OF PHILOSOPHY OF SCIENCE

### 1.A. Empiricism

The three main traditions of philosophy of science are distinguished on the basis of their attitude to the existence of the non-perceivable entities postulated by science. Two of the main traditions have already been mentioned, transcendental realism and transcendental idealism. The third is classical empiricism (positivism) <sup>3</sup>.

The roots of classical empiricism are in the philosophy of David Hume. According to Hume all we can know are atomic impressions of sense. Impressions are events in the consciousness. They can be interpreted realistically <sup>4</sup> to be impressions of events in the world. Even material objects must be constructed as groups of events.

E.g.:                     $x = \text{red at } t_1$   
                               $x = \text{round at } t_1$   
                               $x = \text{sweet at } t_1$   
                              etc.

would constitute a thing, an apple, at the time  $t_1$ . Events are seen to be the building blocks of the world, but they have no necessary interconnections. Thus there is nothing which could warrant that the apple described could not be

for instance a book at  $t_2$ . (Harré 1970, 5-6, Harré & Madden 1973, 215, Harré & Madden 1975, 109-110).

There can be no knowledge about entities, which are not directly perceivable according to this tradition, because only one's sense impressions make something a true object of science. Science can only organize and arrange those impressions about events in the world. The task of science is to find regular concomitants of these events. Universal regularities are called scientific laws. Explanation is regarded to be a deductive argument. An event is explained when a statement describing it is deduced from one or more statements of law and statements describing particular conditions for the occurrence of the event. (Harré 1970, ch.1, Bhaskar 1978, ch.1).

According to the principles of classical empiricism there can be no knowledge about electrons, magnetic fields or social classes, which can be perceived only through their effects.

We take now a very simple and fundamental example in archaeology: what would a "pure" empirist say about a thing which we as archaeologists call a prehistoric stone axe found in European soil. Because we suppose that the stone axe is not interpreted as such, we call it an "x".

For an empirist an "x" would be a stone with a non-random pattern of characteristics concerning its shape<sup>5</sup>. Because no living person has ever seen such a thing being made or used and we cannot even have a written description of such an event (meaning a prehistoric event) the empirist can not propose any prehistoric process as the origin of the thing. For a "pure" empirist there can exist no Stone Age societies, no Stone Age settlement patterns or even houses or weapons. There is only what can be seen, traces in the ground and strange stones. There is no perception of the Stone Age. What an empirist can do is to measure and classify observable properties. Why he should do that as an archaeologist is another question, because it is the necessary condition for archaeology, that no longer perceivable behaviour, processes etc. have produced the artefacts, pollen of cultural plants etc. The finds at hand are our subject of study only in a secondary

way. Our proper subject of study concerns the now vanished behaviour and processes which have left artefacts as traces and products themselves.

Many empiristically oriented archaeologists have thought that we can know as an empirical matter of fact that "x"es found in the European soil as prehistoric stone axes, not thunderbolts. This happened only after the great voyages of discovery when the Europeans had made acquaintance with "primitive peoples" who used the same kind of implements <sup>6</sup>.

Epistemologically speaking we cannot know of any persons observation of the origin of prehistoric stone axes simply because of the fact that they are prehistoric. The fact that theory regarding their real nature has reached the status of universal agreement does not, however, make the theory observational or empirical fact.

#### 1.B. Transcendental Idealism

Transcendental idealism is another main tradition of philosophy of science. This tradition allows creative model-building in finding explanations for phenomena. The purpose of the models is to make phenomena conceivable, not to represent any real mechanism of the world. It is not regarded to be possible to test the models empirically. (Bhaskar 1978, 15, 25-26, 146).

To return to the example of the stone axe, an idealist archaeologist might say that "x" is perhaps a stone axe, but this is not possible to demonstrate. He could say that it is only a statement of ours, or a convention in our society to say so, or that when we state that it is a stone axe, the statement is not in the domain of science, but in that of art.

We have seen these kinds of statements by such eminent anthropologists and archaeologists as Leach (e.g. 1982, 52-53), Hodder (e.g. 1984) and Gould (1980, 46-47). But I still wonder, if they consistently think about the stone axe theory in the same way as more "complicated" theories, concerning e.g. stone age trade. There is no difference of epistemical status between a theory, which explains an "x" as a stone axe and a theory which explains obsidian artefacts found in



areas where there is no natural obsidian as the result of trade contacts in the Stone Age. Of course, there are differences in certainty between theories, but these are quantitative differences, not differences in kind.

### 1.C. Transcendental Realism

According to the third tradition, transcendental realism, the existence of imagined mechanisms and processes is testable. It is seen that the models and processes postulated by science can and some really do represent the real mechanisms and processes of the world. The fact that there must be such mechanisms and processes in the world is reached by a philosophical argument, but it is the task of science to find out what kind of mechanisms really exist. (Bhaskar 1978, 15, Bhaskar 1979, 7-8, 10).

According to transcendental realism we can regard stone axes as stone axes and we can be certain, that if we cannot at present be wholly sure, that the obsidian finds are there as the result of trade contacts, there is nothing in principle which can prevent us to get the right knowledge.

Is there something very familiar in this view? Is it just the same conception nearly every working archaeologist has in his studies. Only theorists of archaeology have claimed something else, and as regards substantial theory, many of the same theorists have forgotten their claims and have regarded these postulated processes as the reality or prehistory.

## 2.THE LOGIC OF SCIENTIFIC DISCOVERY

Although the conceptions of science and the world inherent in empiricism and idealism do not correspond to that inherent in scientific practice, we can still find the levels of empiricism and idealism in the logic of scientific discovery.

In the beginning of theory construction a regularity is normally perceived (fig.1). For an empirist such a regularity is a scientific law, if it is universal, and the theory construction remains here. But this conception creates problems, because in nature there are very few universal regularities outside the astronomical contexts and the laboratories of

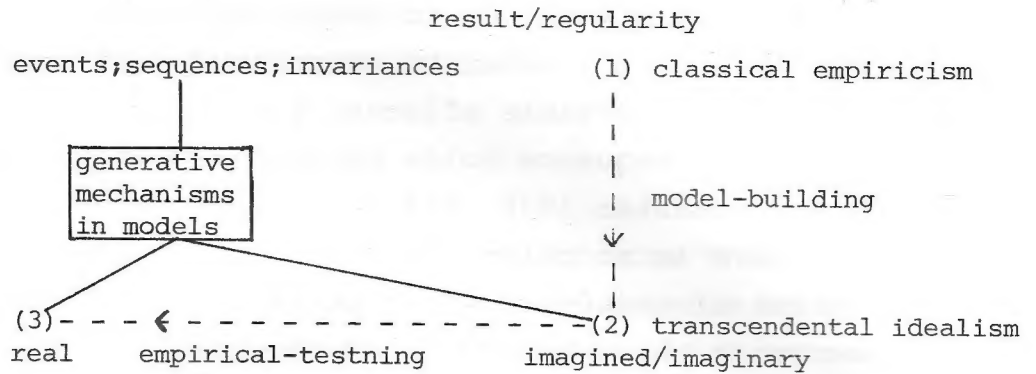


Diagram o.1. The Logic of Scientific Discovery

Fig.1. After Bhaskar 1978, p. 15

scientists. In the subject of human sciences we cannot find any. There is also another problem in this conception. Even if we have registered a regularity, which has been constant in those cases we have perceived, we do not have any warrant, that it will be so also in other cases we have not perceived or which will happen in the future. This creates the notorious problem of induction. (Bhaskar 1978, 65, 104, 163, 198-199, Harré 1970, ch. 1, Harré 1972, 10, 45-46).

On the second level of the logic of scientific discovery a model is imagined to explain the phenomenon. This is the level of transcendental idealism (fig.1). For the transcendental idealist the model is imaginary, a fact about us and does not solve the problem of induction. (Bhaskar 1978, 145-146).

According to transcendental realism it is regarded to be possible to test if the model is representative of a real but directly unperceivable mechanism of the world. The working of the mechanism warrants the continuity of the perceived regularity. Scientific laws are not regarded to be regular concomitants of events, but natural tendencies of the mechanisms to behave in ways peculiar to them. But still, there are very few universal regularities. How is this explained? This is one of the main points in Bhaskar's theory. Most events in the world occur in open systems, They are "conjectures", results of the workings of many different mechanisms at the

same time. (Bhaskar 1978, 14, 146, 165).

What scientists do in their laboratories is that they try to isolate the mechanism under study and activate it to produce its observable effects, i.e. "trigger" it. The universality of sequence holds only in closed systems, not in open ones. (Bhaskar 1978, 164-166).

There is no philosophical problem of induction for an adherent of transcendental realism. The working of the mechanism warrents the universality of regularity. But there is, of course the practical problem of "induction" in every particular case, where there are competitive models to choose from. There are no mechanical rules for choosing the most adequate model. It is the job of working scientists to select the model with all the knowledge he has acquired in his education and work. (Bhaskar 1978, 166-168).

All this concerns the human sciences as well, but there is one great difference. It is not possible to isolate closed systems in the human sciences in the same way as in the natural sciences. The subject of the human sciences is internally structured. Even if we can prevent the influence of all other mechanisms on the mechanism under research, we can get different kinds of effects to the same kinds of stimulus or cause, because the internal state of the mechanism, which is not dependent on the outer conditions, can bring about these differences. In the human sciences it is not possible to have scientific experiments as in the natural sciences. (Bhaskar 1978, 104, Bhaskar 1979, 11-12, 59, Harré 1979, 129).

An explanation in closed systems can be attained beginning with causal analysis of the event in question, redescribing it theoretically etc. (Bhaskar 1978, 125, Bhaskar 1979, 165).

There is no doubt that archaeology is metaphysically a human science, so the systems in the subject of archaeology have been open. But the archaeologists do not have any events to begin their causal analysis with, as do social scientists, psychologists etc. They do not even have descriptions of those events as do historians. What archaeologists have are traces of events and products of processes.

Now we come to the issue of why I have attached so much weight on the philosophy of the natural sciences in this pre-

sensation. It is because the way archaeologists have to approach their subject of research is closer to that of nuclear physics than social sciences.

### 3. REAL AND NOMINAL ESSENCES

In an explanation the real essence of some thing or material is described by the model. The real essence of some thing or material is the mechanism or structure, which is responsible for the properties it manifests. For instance, the real essence of copper is the structure of its atoms. The nominal essence of a thing or material consists of those properties, on the ground of which it is recognized to be the kind it is. The nominal essence of copper includes its red colour, relative softness among metals and specific gravity. (Harré 1970, 10-11, Harré & Madden 1975, 1- 25).

### 4. ON THE STRUCTURE OF ARCHAEOLOGICAL THEORIES

All knowledge presupposes already existent knowledge (Bhaskar 1978, 185). Stone axes were not interpreted as stone axes until there was knowledge of "primitive" peoples who used implements which looked similar. Later, When e.g. the social structures of prehistoric peoples were studied, the knowledge about the real nature of stone artefacts was regarded as certain. It was used to produce new knowledge.

But how is this knowledge structured? According to Rom Harré a theory of natural sciences has two main parts, iconic and sentential. The iconic part describes the (theoretical) entity in question, the sentential part its behaviour. An iconic model is a projective invention. A projective invention is constructed according to some source so that the model in some respect is similar to the source and in some other sense is not. A model also has a subject it represents. For instance, the subject of Bohr's atom model is the atom. The source of the model is our planetary system. (Harré 1970, 1-62).



#### 4.A. Taxonomy of iconic models

Rom Harré has proposed a taxonomy of iconic models for the natural sciences (Harré 1970, ch.2). With a little modification it can be used as the basis for the model theory in archaeology. The iconic models can be divided into three main groups: protomorphs, homeomorphs and paramorphs. The taxonomy is based on different kinds of relations which a model can have with its source and subject. It must be noticed that a model can have a different kind of relations to its source than to its subject.

Protomorphs are elementary models constructed in the beginning of theory building. In archaeology the dendrogram is a good example of a protomorph. Lines connecting the different taxonomic units do not represent any real mechanism, but qualitative differences in a quantitative way. Such protomorphs are geometrizations according to Harré's taxonomy. He also has another group of protomorphs, logical icons, which represent logical relations in such a way that they can be misinterpreted as teleiomorphs (a group of homeomorphs). The dendrogram has something of that kind of nature, too. It can be misinterpreted as a paramorph.

In homeomorphs the source and subject are identical. In constructing paramorphs new knowledge is supplemented in explaining the perceivable phenomena. Bohr's model of atom can be used as an example of a paramorph. The phenomena Bohr explained with the help of the model were some tracks in a cloud chamber. The source of the model, our planetary system, is a very different kind of entity than the atom. The model is a paramorph only in relation to its subject, and in relation to its source Bohr's atom model is a homeomorph.

The source of the model which explains "x"es as stone axes of prehistoric people consists of ethnographic cases, which were known when the theory about their origin was proposed. The subject of the model were those prehistoric situations, where the axes were made and used. The model is a paramorph on the grounds that it has been constructed by imagination and new knowledge is supplemented in constructing it. But it cannot be a paramorph because the subject of a paramorph cannot be an individual of the class, where the class is the

source. The class therefore would be a class of processes of stone axe manufacture and use.

In homeomorphs the source and subject are identical, but homeomorphs are not constructed creatively. The "stone axe model" is not a homeomorph, either.

We do not need to abandon Harré's theory of models, however. Harré has constructed his theory for natural sciences, where time does not create epistemological problems. Metaphysically "the stone axe model" is a homeomorph, but epistemologically it is a paramorph, because it has been constructed creatively and chosen from competitive models. Presumably most archaeological models are of this kind "duomorphs", as we can call them.

## 5. ON THE RELATIONSHIP BETWEEN INDIVIDUALS AND SOCIETIES

Three basic models have been proposed concerning the relationship between individuals and societies. Weber regards social objects (societies etc.) as results of or constituted by intentional or meaningful human behaviour (fig.2). Durkheim reifies social structures. He sees them as having a life of their own. They are external to the individual and they coerce

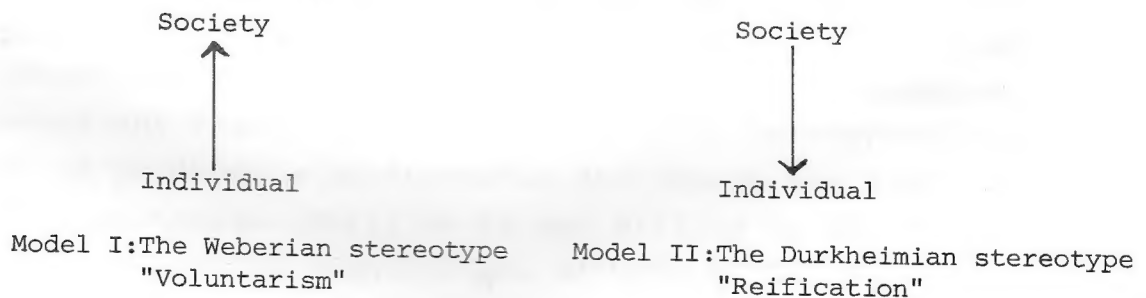
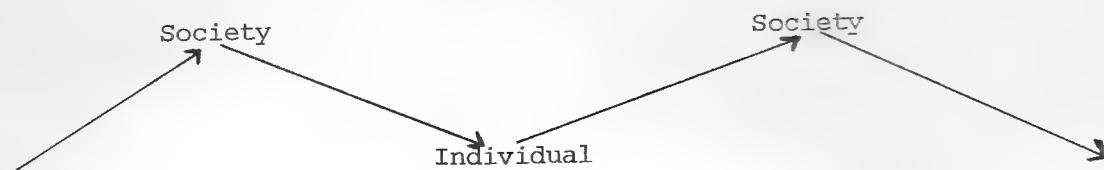


Fig.2 and 3: After Bhaskar 1979, p.40.

him (fig.3). Berger has tried to combine these two views in his dialectical model, where society forms the individuals, who create the society. The society produces the individuals etc. in a continuing dialectics (fig.4). (Bhaskar 1979, 39-42).

Bhaskar regards all of these models as unsatisfactory. The weakness of Weber's model is that it cannot do justice to the coercive power of social structures. In Durkheim's

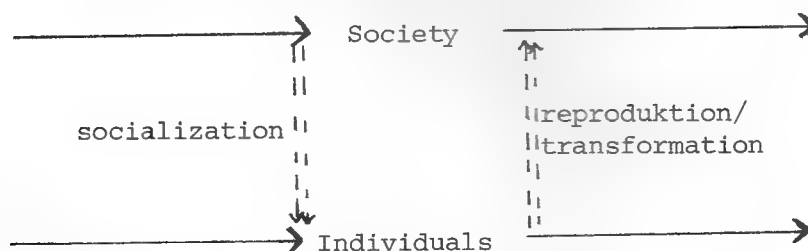


Model III: The "Dialectical" conception  
"Illicit Identification"

Fig.4. After Bhaskar 1979. p. 40.

model there is no room for voluntariness in human behaviour. The dialectical model has according to Bhaskar the defects of both models, because people and society are seen as moments of one process. (Bhaskar 1979, 40-42).

Bhaskar presents his "transformational model of the society/person connection. Societies and persons are regarded to be wholly different kinds of things, which have very different kinds of properties. Human action is intentional, but social structures are unintentional. But of course societies are dependent on human actions. Society is both the ever-present condition of human agency and its continually reproduced outcome. By conscious agency people mostly unconsciously reproduce the structures, which rule their activities (fig.5). (Bhaskar 1979, 41-46).



Model IV: The Transformational Model of the Society/Person  
Connection

Fig.5. After Bhaskar 1979, p. 46.

## 6. EXPRESSIVE AND PRACTICAL ORDER

One of the basic principles in Rom Harré's social psychological theory is that the public and collective aspects of human life are produced by the interaction of expressive and practical orders. The practical order is connected to the production of the means of life, expressive order to the seeking of the respect and esteem of others.

The difference between these aspects is an analytical one. The very same action includes very often both aspects. The sowing of corn is a practical action, but it presents the sower as a reasonable person to others. Harré regards the aspects as independent of each other with an autonomy of their own. There is no a priori reason to regard one of the orders dominating, but history and anthropology give good reasons to think that in most cultures and at most times the expressive order has been the most powerful. (Harré 1979, 19-22, 1981, 161-162).

Harré criticizes Marx for seeing superstructure as a product of the practical aspect of the society, a conception which he calls socio-economics. He also criticizes the theory, according to which there is a productive relationship between ecological conditions, their exploitation and social forms. The most important representative of this theory, which he calls socio-ecology, is Marvin Harris. (Harré 1979, 26-31).

Harré says that neither Marx nor Harris have been able to present any causal mechanism which could be responsible for the kind of productive relationship and denies the possibility of such a mechanism. Still he is not willing to abandon the conception about the significance of production system for social life. His mutation/selection model preserves our intuition of the significance of both orders in social change. The source of the model is in evolutionary biology. The causes of social practices are different from the causes of their invention, replication and survival. The practical aspect has significance for the selection of the phenomena of the expressive aspect, but it does not produce them. (Harré 1979, 26-32).

## 7. PROBLEMS RAISED BY THE EMPIRISTIC AND IDEALISTIC THEORIES OF ARCHAEOLOGY

### 7.A.Empiricism

As mentioned above, in their substantial theory building archaeologists have nearly always been realists. But many have believed themselves to be empirists and have put forth theoretical views, which have followed those lines and which have been in conflict with their substantial work. Adherents of transcendental idealism have been able to preserve more coherence in that topic, but not in relation to science in general, as I will present later.

My intention is not to go through the theoretical literature of archeology in this context <sup>7</sup>, but to illustrate by a couple of examples from two articles, which kind of problems empiricism and idealism can create. Both articles can be seen to have created a new "paradigm" for archaeology.

Binford is not the first to offer the ideas of empiristic tradition for archaeology, they have been "in the game" nearly as long as there has been archaeology. What he did in "Archaeology as Anthropology" in the year 1962 was that he introduced a more analytical and theoretical stage than we were accustomed to in archaeology, as well as some system-theoretical ideas.

Binford defines - or describes - scientific explanation for archaeology as follows (Binford 1962, 217):

"The meaning which explanation has within a scientific frame of reference is simply the *demonstration* of a constant articulation of variables within a system and the measurement of the concomitant variability among the variables within the system. Processual change in one variable can then be shown to relate in a predictable and quantifiable way to changes in other variables, the latter changing in turn relative to changes in the structure of the system as whole (*italics* Binford's).

Before going to the details of Binford's definition a couple of words about the so-called parametric method are called for. In the parametrical method a scientific experiment is arranged so that certain factors (parameters) are held constant and others varied. The condition for applying the parametrical method is that properties, which the variables describing the system are



referring to are not internally related to each other. They can be varied separately so that they preserve their identity. For instance, in the gas law ( $PT = RT$ ,  $P = \text{press.}$ ,  $V = \text{vol.}$ ,  $T = \text{temp.}$ ) the pressure remains pressure and gas gas, no matter how much they are varied. In the parametrical process elements retain their identity even if they are separated from their structures. If a structure is internally related it is no longer an element of that kind when it is taken apart from its structure. (Harré & Secord 1972, 56-57, Harré 1979, 129).

The aforesaid is connected with the fact that the laws governing the system must not change in a parametric system, when its state changes, and it must be possible to construct a closure (closed system). However, this is not possible in the human sciences, where there are no truly universal laws governing the behaviour of systems. This problem can be overcome by a feedback loop, which introduces new variables or emergent states of system. Even this does not make it possible to predict the course of a system, only retrodict, i.e. to explain afterwards, why the procedure took the course it did.

What Binford gave as the description of an explanation in archaeology is a description of a parametric method with a specification of the feedback loop. So far this is sufficient for describing the behaviour of complex internally related systems such as human systems, but is it enough for explanation in archaeology?

If we think about the gas laws again we can see, that they describe the behaviour of the gases, but they do not give us an explanation of why the gases are behaving as they do. The formula gives only the sententious part of the theory. In the Humaen tradition where the task of science is seen only as finding regular concomitants of events, the parametric method can be counted as an explanation. But in the practice of science and in the realistic interpretation this is not enough. There is an iconic part in the theory. The real nature of the entity under study is given with an iconic model. The structure or mechanism represented by the iconic model warrants the regularity of the behaviour and explains it. In the example above, the behaviour of gases is explained by a model, which represents gases to be composed of small particles.

Another grave defect in Binford's definition is that it deprives us of the most important epistemological distinction in archaeology, i.e. between what can be perceived and what cannot be perceived. He treats our subject of study as if it were something directly measurable. The subject of variables and measurements are modern societies and environments. Their use in prehistoric situations is dependent on analogical models, by which they are tried to be adjusted to explain archaeological finds. Taken as a whole, it is something like this Binford tries to say. It is only the philosophy of empiricism which has got him to formulate his definition so that there is no distinction between what explains and what is the subject of explanation.

#### 7.B.Idealism

As another example I have taken Edmund Leach's concluding address in "The Explanation of Cultural Change" (ed. by C. Renrew 1973). Leach represents transcendental idealism, the nearest bases of his approach being in structuralism. Leach's contribution has been the starting point for a new idealistically oriented, structural archaeology.

Leach (1973, 764) says, that the analogy of human behaviour is not a law of nature, but the game of chess. The field of play and rules are given, but the way the game is played can not be predicted.

However, the rules of chess can also be used as an analogy of the laws of nature. The course of events is determined only in closed systems, which are very rare in nature. (Bhaskar 1978). Think about the weather forecast. Predicting the future weather is not very often succesful, but the metheorologists can very well explain, why the storm broke out after it did so.

Leach (1973, 764) allows only "what" question to be verified in archaeology, answers to "how" and "why" questions he regards as pure speculation. Because archaeologists are dealing with human materials there are no intrinsic probabilities or statistics. Science cannot give answers. Because nobody can predict the future or reconstruct past history.

To illustrate the aforesaid Leach presents a model, which for him is naturally a heuristic devise only (fig.6). The

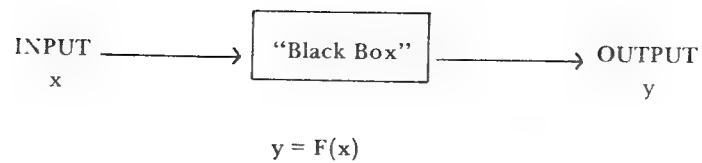


Fig.6. After Leach 1973, p.765.

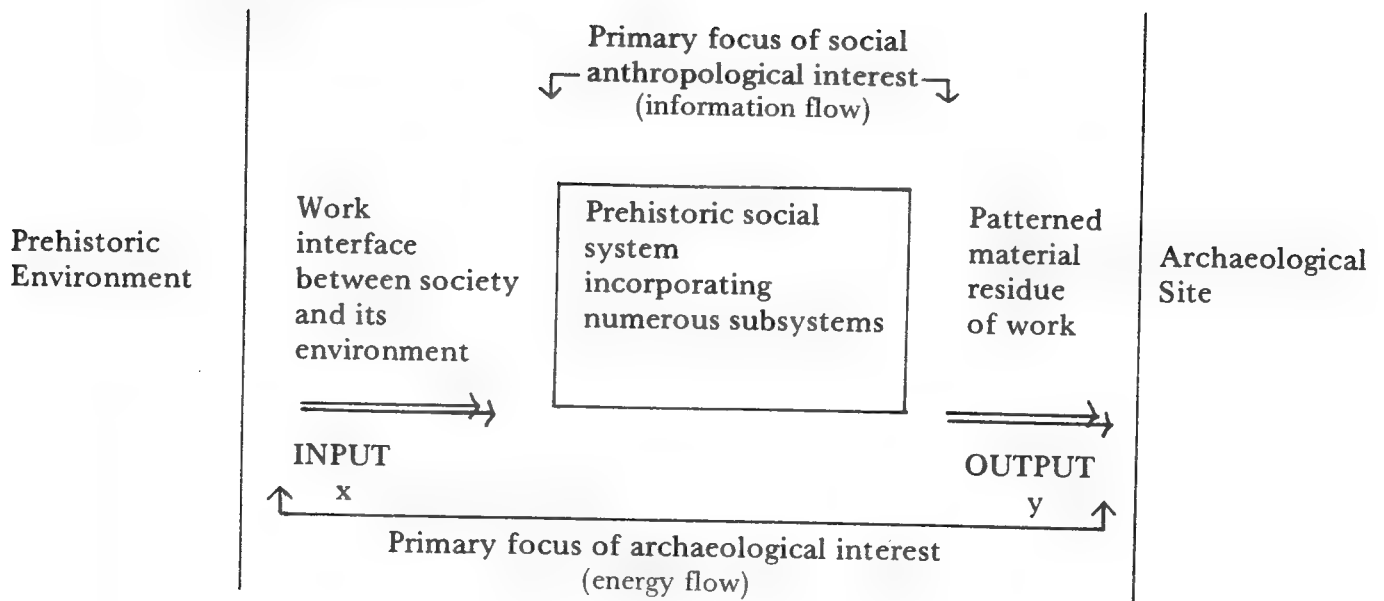


Fig.7. After Leach 1973, p. 766.

figure shows a "black box", "an imaginary mechanism, the working of which cannot be investigated" (Leach 1973, 765). "Cannot be investigated" should be interpreted as "cannot be perceived directly". Leach says that even if we know the input "X" and the output "Y" we cannot infer what is in the box. He continues that in the sciences mechanisms are often postulated, which seem to be convincing, until they prove to be wrong. However, in the case of social systems nothing can be said about the content of the box.

As regards archaeology, Leach presents figure 7 and insists that Binford and others naively believe, that archaeologists not only reconstruct "X", but also the internal organisation of the "black box". He says that there are always indefinitely many possible ways in which particular social systems can be adapted to particular ecological and demographic situations. Social anthropologists have no "black box" problem, because they can observe the workings of the system. (Leach 1973, 767).

Leach does not seem to see that he shares the same epistemological and metaphysical commitments as the positivists. The criticism of Binford and others is not directed against their empirical definitions, but their realistic substantive theory building.

For Leach there is an empirical world of facts, the perceptible world where science can operate. It is possible only to speculate about things and processes which are not directly perceptible. But, surprisingly enough, he does not see, that the whole concept of human culture in prehistoric times is in the realm of nonperceptible entities. We can only see traits which we interpret as traits of human culture. Also this should be speculation according to Leach. Our concept of prehistory is in the "black box".

As regards the hypothetical mechanisms postulated by the natural sciences there is the striking phenomenon of how often the things postulated in the "box" have been found afterwards when the detecting instruments have been developed. This has been the case with atoms, genes, viruses etc. If there were an indefinite range of possibilities this could not be possible.

Leach says that social anthropology has no black box pro-

blem. This thesis is based on two kinds of misconceptions. First, he is confusing two kinds of rule conceptions, the explicit rule (rule 1) and the implicit rule (rule 2). I know the rules of my native language, because I can use it. But I could use it without knowing any explicit rules (rules 1), the grammar, which I have learned in the school and nowadays partly forgotten without losing my ability to speak and write my native language. One of the tasks of social anthropology is to "make" rules 2 to rules 1. There was no need for scientific discussion and theory change if the rules 2 were directly perceptible. The rules 1 are answers to "why" questions in social anthropology, but there are other kinds of answers, too. Especially for an archaeologist, who is interested in cultural change reference to rules is not enough. There are no rules for changing rules. That is why the archaeologist - also anthropologists depending on his questions - have to go to paractical order, ecological conditions etc. to search for explanation.

The other reason for Leach to deny the existence of a "black box" problem in anthropology lies in his general philosophical background. He is committed to empirical realism<sup>8</sup>. Only perceptible entities can be proper subjects of study for him. The rules he misinterprets as perceptible entities, as seen above. However, there are no social structures in his world - he does not regard them perceptible. But still his model of the relationship between society and individual has the character of the model of Durkheim. The rules of behaviour have taken the place of social structures. The defects of this model are the same as those of Durkheim's, e.g. it is not possible to explain social changes. The value of this kind of a model is very modest for archaeology.

#### 8.FILLING UP THE "BLACK BOX"

In the following I try to sketch by an example how it can be possible to "get into the black box" in an archaeological context. As an example I try to survey, how we can know that the evolutionary scheme, which has its roots in anthropology, describes prehistorical reality. For the sake of simplicity I



take Morton H. Fried's classical article "On the Evolution of Social Stratification and the State" as the starting point. (Fried 1960).

According to Fried the evolution has taken the following course: egalitarian organisation, rank society, stratified society and state society. The course is following the line of growing prestige and power relations found in a society. If we approve that the presence of some kind of power relation is one of the features defining societies of human beings - it is really hard to think how it could be otherwise - the sequence from egalitarian to absolute power relations is necessary, comprehending all the possibilities. So, we can say that as long back in time as there have been human societies, there have been power relations described by Fried's model, or at least by some of them. There are two more problems to solve, which are entangled in each other. First, what are the reasons for the division in four, why cannot there be two or ten taxonomic units as well. The other matter is the question of much more than power relations only in Fried's model. What can we say about those features in prehistoric contexts?

The power relations belong to the expressive order. The other mechanism Fried uses as defining the different taxonomic units belongs to the practical order, economy. The four part division is partly determined by these power relations, partly by the economic mechanisms. There is not any kind of logical necessity between the types of power relations and economic mechanisms, but we have good reasons to suppose, that those relations are like natural necessity. There is no occupational specialisation over age and sex in societies, whose power relations are characterised as egalitarian. They have no market economy, only household economy etc. These mechanisms are found in today's societies, but they are found world widely in regions, which cannot have had any kinds of cultural contacts at least during the last ten thousand years or more. This presentation is simplified too much, but a detailed analysis would take the whole book, so I do not go any further on this topic.

We have reached so far with anthropology and conceptual analysis. When we go to archaeology we first have to pay our

attention to the material products or manifestations of ethnographically known peoples. Different kinds of societies have different kinds of material products and symbols of prestige and power. We know, that there are no organizational possibilities in egalitarian societies to build monumental buildings and that high rank is often reflected in luxurious grave goods.

As archaeologists we have two kinds of phenomena to interpret: the material remains left by prehistoric people found in soil and social structures such as they were when they came to the light of history. In interpreting these phenomena we do not make any inferences, no deductive nor inductive, from the statement describing these material remains or earliest historically known social structures, but we try to find explanations for them by constructing iconic models. We really do not have possibilities to reconstruct the great varieties of disappeared forms of life. But if we have found e.g. the real essences of the different social organisations we can use these as the sources of models when interpreting the prehistoric material remains. As we know, there are material manifestations of culture in the early periods of prehistory, which resemble those of egalitarian societies etc. These are trivialities to all apart from the followers of Leach.

In the following I will present a couple of words about the causes of the social evolution. It has been argued that the will of power of some individuals has been the reason for the social evolution. It is self-evident, that without activities aiming to increase power, these forms of society could not have been evolved. But this does not explain anything, because the will of power is a psychological character found in representatives of every society.

The activities aiming at increasing power can be seen as mutations in Harré's mutation/selection model. The causes why the society has allowed some of its members to take more power can be found in the practical order. In the case of overpopulation, scarcity in food and host of war the strict organisation and order, and the large units have had more potential to survive than the small scale egalitarian organisations.

This model is also in accordance with Bhaskar's transforma-

tional model of society/person connection. The birth of rank society has been the objective of somebody. It is a by product of a process in which some individuals have been able to actualize their will of power in conditions which have made more effective organisation necessary for survival.

As said, my presentation is on a quite coarse level. But I hope that I have been able to show that this "new paradigm" has potential to solve metaphysical, epistemological and methodological problems of archaeology.

As a matter of fact, there is only little reason to speak about a "new paradigm", because its roots are deep in the old archaeological practices. It makes the epistemologically important distinction between perceptible and non-perceptible entities, which have been self-evident to "old" and "new" idealistic archaeologists. But on the contrary, it says that the existence of the disappeared human culture does not make archaeology impossible, but it is the condition for archaeology as a distinctive science thus preserving the realistic intuition of the "empirist" archaeologist.

It also preserves Binford's et al. intuition about the importance of practical order for cultural change, but does not neglect the role of expressive order, which Leach, Hodder and others have seen as the only efficient factor in the social world.

---

I am very much in debt to Mr. Uskali Mäki, M.A. for discussions of the topics and criticism of the former versions of this paper. I am also very thankful to Mr. Jyri Kokkonen, M.A. and Miss Irma Rinta, M.A. for correcting the linguistic form of this paper.

NOTES

- 1 Roy Bhaskar uses a transcendental argument to justify realism, therefore the name. Metaphysical realism is the name Putman (1978) and Tuomela (1980, 1983) have given to a construction, which they set opposite to internal realism. As far as I know there are no adherent for that kind of "metaphysical realism". E.g. the realism of Bhaskar and Harré, which I am introducing in this paper, has very little to do with that construction.
  
- 2 Harré does not use transcendental argument, but because otherwise his theory does not seem to be in conflict with Bhaskar's, I denote with the term "transcendental realism" both of these. The term "metaphysical realism" has associations which do not belong to the theory of Harré and Bhaskar (see note 1).
  
- 3 Division is after Bhaskar (1978). The terms are referring to "ideal types". Most of philosophers of science have had stands somewhere in between the "pure" lines. Classical empiricism and positivism are not quite synonymous, but they have sufficient in common to be treated together in this connection.
  
- 4 This refers to empirical realism, according to which only directly perceptible entities can be said to exist. It should not be confused with scientific realism.
  
- 5 Non-random with respect to natural stones, which should be supposed to be interpreted before.
  
- 6 A good introduction to the topics is in Clarke (1978, 2-10).
  
- 7 I have found until now about 150 papers, where problem of induction, inference, explanation etc. are explicitly treated in archaeological context.
  
- 8 See note 4 about empirical realism.

LITTERATURE

- Bhaskar, Roy, 1978. A Realist Theory of Science. Sussex. 2nd. ed.
- Bhaskar, Roy, 1979. The Possibility of Naturalism. A Philosophical Critique of the contemporary Human Sciences. Sussex.
- Binford, Lewis R., 1962. Archaeology as Anthropology. American Antiquity. Vol. 28, no. 2.
- Clarke, Davik L, 1978. Analytical Archaeology. 2nd. ed. Bristol.
- Fried, Morton H., 1960. On the Evolution og Social Stratification and the State. In Diamond, Stanley (ed.) Culture in History. Essays in Honour of Paul Radin. New York.
- Gould, R. A., 1980. Living Archaeology. Cambridge.
- Hagking, Ian, 1983. Representing and Intervening. Cambridge.
- Harré, Rom, 1970. The Principles of Scientific Thinking. Edinburgh.
- Harré, Rom, 1972. The Philosophies of Science. An Introductory Survey. Oxford.
- Harré, Rom, 1979. Social Being. A Theory for Social Psychology. Oxford.
- Harré, Rom, 1981. The Evolutionary Analogy in Social Explanation. In Jensen, Uffe J. & Harré, Rom (ed.): The Philosophy of Evolution. Sussex.
- Harré, R. & Madden, E. H., 1973. Natural Powers and Powerful Natures. Philosophy 48.
- Harré, R, & Madden, E. H., 1975. Causal Powers. Oxford.
- Harré, R. & Secord, p. F., 1972. The Explanation of Social Behaviour. Oxford.
- Hodder, Ian, 1984. Archaeology in 1984. Antiquity LVIII.
- Leach, Edmund, 1973. Concluding Address. In Renfrew, C. (ed.): The Explanation of Culture Change.
- Leach, Edmund, 1982. Social Anthropology. Glasgow.
- Muurimäki, Eero, 1983. Metafyysinen realismi ja annetun myytti.
- Mäki, Uskali, 1984. Wissenschaftlicher Realismus - Kontro-



versen und Konvergenzen. Dialektik 8. Köln.

Mäki, Uskali, 1985. Tieteellinen realismi ja marxismi.  
In Niiniluoto, I. & Saarinen, E. (ed.): Vuosisatamme  
filosofiat. (Forthcoming).

Putnam, Hilary, 1978. Meaning an the Moral Sciences.  
London.

Tuomela, Raimo, 1980. Metaphysical versus Internal  
Realism. Helsingin yliopiston filosofian laitoksen  
julkaisuja 8. Helsinki.

Tuomela, Raimo, 1983. Tiede, toiminta ja todellisuus.  
Tieteellisen maailmankäsityksen filosofiset perusteet.  
Jyväskylä.



nr. 28-29